

IMPROVEMENT OF GAOLS.

SPRINGFIELD GAOL.—KNUTSFORD HOUSE OF CORRECTION.

THE *Chelmsford Chronicle* lately gave an account of the remodelling of the county jail on the plan of the Pentonville prison and Middlesex house of detention, at a cost of about 36,000*l.* the original building being one completed in 1828 at a cost of about 57,300*l.*

The main alteration is in the central hall and grand corridor.

The central hall affords the means of inspecting the corridors, having in sight the door of most of the cells. Stretching out from this are two lengthy corridors, one trending somewhat to the right hand and the other to the left, and on either side of these are three tiers of cells, the two upper rows opening upon light iron galleries attached to the walls, and communicating with each other by means of iron staircases, so that though secure the whole has a light appearance. The hall is lighted by a large window in the centre, and the corridors from the roofs. Around the hall are galleries, reached by a circular stair, and on a level with those along the corridors communicating with the different rows of cells, and opening a ready way to the chapel. Each prisoner is to be provided with a gas-light and the means of employment as a shoemaker, tailor, &c., with a ready means of communicating at all times with the officers.

The rations, from the kitchen below, are raised by machinery through the kitchen ceiling and floor of the central hall, stopping at each gallery, where the trays will be run along on a sort of wagon and served up, in an incredibly short space of time, all hot and in prime condition, to the envy it is to be feared of surrounding shoemakers and tailors, who, it is to be hoped may not be thus induced to long to be on the wrong side of the prison walls.

There are 119 cells in one wing and 120 in the other, with 42 for females.

The chapel has been rebuilt and remodelled, a new house for the governor erected near the gateway, and the debtors' small department also remodelled. The exercising yards are on the radiating system, with the usual provision for influencing the conduct of the prisoners by occasional and unseen supervision. There is an improved laundry with drying rooms, and scientific appliances for the economizing of manual labour; and the movements of the kitchen department are conducted by steam.

The ventilation and heating of the whole have been specially provided for. The apparatus for heating consists of a boiler or case in the centre of the basement story of each wing, with pipes for the circulation of hot water. The fresh air introduced through a large flue open to the external atmosphere, after passing over the surface of the boiler, turns right and left along a main flue which runs horizontally under the floor of the corridor, and from thence passes upwards through small flues in the corridor wall, which terminate respectively in a grating placed close under the arched ceiling of each cell.

To extract the foul air, a grating is placed close to the floor of each on the side next the outer wall, and diagonally opposite the point where the fresh air is introduced. This grating covers a flue in the outer wall opening at the upper extremity into a horizontal foul air flue in the roof, communicating with a vertical shaft rising 20 or 25 feet above the ridge. In some of the cells, a regulator enables the prisoner to admit warm air from the main flue, or cool air from the corridor, at pleasure.

In a subsequent number the *Chronicle* gave a sketch of the chapel, which, as already said, has also been remodelled on the radiating system, with the pulpit in the centre; and an engraving of the interior of a cell, which displays the precise arrangement at Pentonville already shown by an engraving in *THE BUILDER*.

Knutsford House of Correction, near Manchester, has been enlarged and altered, under the direction of Messrs. Dickson and Brakspear, architects. It previously consisted of a small chapel and governor's house, forming a central building, and five blocks of buildings radiating from it, but detached from it, and wholly separate from each other.

On the site of what was an open yard, between the chapel and the wings, an inspection

corridor has been formed, which is pentagonal in form, being in fact five sides of an octagon, the chapel occupying the open space near the ends of the pentagon. The corridor is 12 feet wide, except in the centre, where it is of much greater width; and 12 feet in height. It has communication doors with all the wings and exercising yards, which now radiate from it, and thus gives more comfort to the officers. According to the *Manchester Guardian*, this corridor possesses remarkable acoustic properties. "We cannot make these fully apparent without diagrams; but let the reader cut off any three sides of an octagon, and he will have the form of the corridor; then let him suppose a building or wing upwards of 100 feet long, diverging at right angles from one end of this corridor, and he will have some idea of the remarkable transmission of sound when we state that in the night a person speaking in a low voice at the farthest end of this wing, could be distinctly heard at the opposite extremity of the corridor, and even the slightest scratching or any other noise was transmitted round five angles, a distance of from 200 to 300 feet, and heard most distinctly at that distance. Doubtless, the arched ceiling of the wing, and the form of the corridor, are both extremely favourable to the transmission of sounds; but we need not dwell on the obvious advantage of this quality in a prison, where it is of the utmost importance that every aid should be given, in construction, to the strictest and most careful surveillance of the prisoners, night and day. An officer on duty in the night, in this corridor, can thus at once hear the single stroke on a small bell in the wing of the prison, which any prisoner taken ill, or desirous to communicate with the officer, can produce at will, while locked up in his cell." The principal alteration effected, however, is in one of the radiating wings. These are 100 feet in length, and have three distinct stories, with central corridors and ranges of cells on each side. But in the one referred to, these floors and walls have been swept away, leaving the cells alone, to which access is given by narrow side galleries, as at Pentonville. The cells are also fitted up in the same manner.

The ventilation of the cell is effected by admitting fresh air from the corridor (which may be regarded as a large air chamber) by means of a grating over the door, at a height of 10 feet from the floor; the vitiated air being carried off by a grating a few inches above the floor, into a flue or trough; and all these flues pass into one great chimney shaft in the centre of the building. A furnace is provided, which it may be necessary to use occasionally in order to commence the draught.

MANUFACTURE OF ARTIFICIAL STONE.
INSTITUTION OF CIVIL ENGINEERS.

THE first meeting of the session was held on Tuesday evening last, when a paper was read, descriptive of Mr. Frederick Ransome's process for making artificial stone. The *modus operandi* appeared to be very simple:—broken pieces of silica (common flint) being subjected for a time to the action of caustic alkali, boiling under pressure in a close vessel, formed a transparent silicated solution, which was evaporated to a specific gravity of 1,600 (distilled water being 1,000), and was then intimately mixed with given proportions of well-washed sand, broken granite, or other materials, of different degrees of hardness. The paste thus constituted, after being pressed into moulds from which the most delicate impressions were readily received, was subjected to a red heat, in a stove or kiln, by which operation the free or uncombined silica of the raw materials united with the excess of alkali existing in the solution, thus forming a semivitreous compound, and rendering the artificial stone perfectly insoluble. This production is said to be adaptable to a comprehensive range of objects, for decorative art and for architectural purposes: busts, vases, flooring-tiles, steps, balustrades, mouldings, capitals, shafts and bases of columns, &c. &c. Even grinding-stones and whetstones for scythes have been made. It was stated to be already extensively manufactured at Ipswich, and was thought to admit of extensive application where elaborately carved stone would be too expensive.

PROGRESS OF GAS MOVEMENT.

THE City Sewers Commissioners have had a long discussion on the means of accomplishing an immediate reduction in the price of gas for lighting the streets, &c., and have resolved on the adoption of efficient measures forthwith. —The Imperial Gas Company have announced their intention to reduce the price of their gas from 7*s.* 6*d.* to 6*s.* per 1,000 feet; the fifteen-hole Argand burner to be 2*l.* 11*s.* 6*d.* per annum for light from sunset to 9 p.m., and others in proportion. Consumers would no doubt feel inclined to give the Imperial all due credit for such an act of partial justice to themselves, were it not obvious that one main object of the reduction is to paralyze the new Western in its incipient state. The announcement appears to have been first made on the very morning of the day on which the Marylebone parish vestry were to decide on the terms on which the Western were to be allowed to pervade that parish with their pipes. There also appears to be a warm struggle of interests and motives in the Marylebone vestry itself, and in its Gas Committee which had thrice reported on the terms proposed, and now their report has been a third time sent back to them. During the long and somewhat personal discussion on it, Mr. George Daniell said, that "if the vestry were really desirous of putting down the gas monopoly, they would vote for the resolution in the report, forfeiting the pipes of the Western Company, in case of amalgamation with any other company. If they did not do so, the mere penalty of 15,000*l.* would be laughed at, and, as in the case of the water companies, the vestry set at defiance." The retrogradation of the report was voted, admittedly, or at least obviously, in order to bias the three-determined committee in favour of monopoly, on the very ground, adduced, that "the application of the Western Company, considering the present position of the vestry with the Imperial was inopportune." So that the object of the Imperial, in their very opportune reduction, is but too manifest. —The Chartered Gas Company, and some on the Surrey side, are also about to reduce the price to 6*s.* —A lecture on the gas movement, and against the alleged gas tax, was lately delivered at Manchester by a Mr. T. Remiol. The *Manchester Examiner* and other papers support us in our already-expressed opinions on the latter subject. The formation of an Anti-Gas-Tax League has been proposed at Manchester, —rather prematurely we hope. —Under the head of "Evils of Monopoly," the *Bradford Observer* states that an ingenious mechanic, Mr. Marquardt Lupton, at Harrogate, "makes his own gas at a cost of 1*s.* per 1,000 feet," while "the Harrogate Gas Company very modestly demand 8*s.* 4*d.*!" "Consequently," as the *Observer* rightly adds, "they find but few customers at that exorbitant charge," the Improvement Commissioners even refusing to have the streets lighted on unreasonable terms. Surely they need not be long at the mercy of such a company. —Good gas shall be within the reach of all before long: *THE BUILDER* has said it, and will see it done.

THE NIGHTMAN-FALLACY, OR FALLACIA CLOACINÆ.
JUMPING TO CONCLUSIONS.

SIR,—Mr. P'Anson has, I hope, done good service in attracting attention to the fact that the nightmen of London were exempt from the attacks of the cholera in 1832: I may add, that a similar fact was observed in Paris; the Prefect of Police reported to the Chamber that not one of the nightmen of Paris, who were employed in removing the contents of the cesspools to Montfaucon, was attacked with cholera.

Those who consider that such facts prove that the effluvia from nightsoil is harmless may be perfectly honest,—they are merely bad logicians: they jump too hastily to their conclusions. Without speaking too positively, I believe that it will be found that the disturbance of nightsoil occasions the disengagement of a quantity of ammonia; so that, as ammonia is an antidote against depressing infection, the nightmen are enveloped in a protective gas. To argue, as some do, and as others would seem to wish that their hearers or readers should do,—that because nightmen are